

What is claimed is:

1. A fluid-ejection device comprising:

at least one nozzle operatively associated with at least one displacement unit configured to impart mechanical energy on fluid associated with the nozzle to cause a fluid drop to be ejected from the nozzle; and,

a cathode ray tube configured to supply energy to selectively effect the displacement unit to control ejection of the fluid drop.

2. The fluid-ejection device of claim 1, wherein the cathode ray tube comprises a cathode ray pin tube having at least one conductor configured to receive an electron beam generated by the cathode ray tube, the at least one conductor being electrically coupled to an individual displacement unit via a conductive path.

3. The fluid-ejection device of claim 2, wherein the cathode ray pin tube is configured to emit an electron beam along a first axis and wherein the at least one conductor extends along a second axis which is generally orthogonal to the first axis.

4. The fluid-ejection device of claim 2, wherein the cathode ray pin tube is configured to emit an electron beam along a first axis and wherein conductor extends along a second axis which is generally parallel to the first axis.
5. The fluid-ejection device of claim 2, wherein the cathode ray pin tube is configured to emit an electron beam along a first axis and wherein conductive pin extends along a second axis which is generally obtuse to the first axis.
6. The fluid-ejection device of claim 1, wherein the at least one displacement unit comprises a fixed assembly and a displaceable assembly and wherein the displaceable assembly is configured to move relative to the fixed assembly to impart the mechanical energy on the liquid.
7. The fluid-ejection device of claim 1, wherein the at least one displacement unit comprises multiple independently controllable displacement units associated with the nozzle.
8. The fluid-ejection device of claim 1, wherein the displacement unit comprises a deformable membrane.

9. The fluid-ejection device of claim 1, wherein the at least one nozzle comprises a number of nozzles, and wherein the at least one displacement unit consists of a number of displacement units which equals a number of nozzles.

10. A fluid-ejection device comprising:

a plurality of fluid drop generators, individual fluid drop generators comprising a displaceable assembly for ejecting fluid; and,
an electron beam generation assembly configured to deliver electrical current proximate to individual fluid drop generators to cause fluid to be ejected therefrom.

11. The fluid-ejection device of claim 10, wherein the displaceable assembly is configured to have a non-displaced condition and a displaced condition and wherein delivering energy from the electron beam generation assembly proximate the displaceable assembly causes the displaceable assembly to assume the displaced condition.

12. The fluid-ejection device of claim 11, wherein the displaceable assembly is configured such that ceasing to deliver energy from the electron beam generation assembly proximate the displaceable assembly causes the displaceable assembly to assume the non-displaced condition which imparts mechanical energy upon fluid proximate the displaceable assembly.

13. The fluid-ejection device of claim 10 further comprising a voltage source configured to deliver electrical energy proximate the displaceable assembly sufficient to cause the displaceable assembly to assume a displaced condition and wherein delivering energy from the electron beam generation assembly proximate the displaceable assembly causes the displaceable assembly to assume the non-displaced condition and thereby exerting mechanical energy on fluid proximate the displaceable assembly sufficient to cause fluid to be ejected from an associated nozzle.

14. The fluid-ejection device of claim 10, wherein the displaceable assembly comprises a portion of a displacement unit and wherein the electron beam acts directly upon the displacement unit.

15. The fluid-ejection device of claim 10, wherein the electron beam generation assembly comprises a cathode ray tube having multiple conductors positioned therethrough which are independently addressable by an electron beam generated by the cathode ray tube.

16. The fluid-ejection device of claim 15, wherein the displaceable assembly comprises a portion of a displacement unit and wherein the electron beam generated by the electron beam generation assembly acts upon the displacement unit via one of the multiple conductors.

17. The fluid-ejection device of claim 15 further comprising an interface interposed between the cathode ray tube and the plurality of fluid drop generators and configured to electrically couple individual conductors of the cathode ray tube with individual fluid drop generators.

18. A fluid-ejection device comprising:

a fluid assembly defining a plurality of nozzles for ejecting fluid droplets;

and,

a cathode ray pin tube associated with the fluid assembly and configured to selectively effect ejection of fluid droplets from individual nozzles.

19. The fluid-ejection device of claim 18, wherein the fluid assembly comprises a plurality of displacement units, individual displacement units associated with an individual nozzle and configured to impart mechanical energy on fluid proximate the displacement unit sufficient to cause fluid to be ejected from an individual nozzle.

20. The fluid-ejection device of claim 19, wherein the cathode ray pin tube comprises a plurality of electrically isolated conductors and wherein the fluid assembly comprises a plurality of conductors individually coupled to the displacement units and wherein individual conductors of the cathode ray pin tube are electrically coupled to individual conductors of the fluid assembly.

21. The fluid-ejection device of claim 18 further comprising an interface interposed between the fluid assembly and the cathode ray pin tube through which individual conductors of the fluid assembly are electrically coupled to individual conductors of the cathode ray pin tube.

22. The fluid-ejection device of claim 18, wherein the cathode ray pin tube is a modular unit and the fluid assembly is a modular unit and wherein the cathode ray pin tube assembly and the fluid assembly can be removably associated.

23. A fluid-ejection device comprising:

a fluid assembly comprising at least one displacement unit and an associated nozzle through which fluid can be selectively ejected; and,

at least one electron beam generation assembly configured to modulate and steer an electron beam to energize individual displacement units sufficient to cause a fluid drop to be ejected from the associated nozzle.

24. The fluid-ejection device of claim 23, wherein the electron beam generation assembly comprises deflection plates configured to steer the electron beam.

25. The fluid-ejection device of claim 23, wherein the electron beam generation assembly comprises a deflection mechanism configured to steer the electron beam.

26. The fluid-ejection device of claim 23, wherein the electron beam generation assembly is configured to control the current of the electron beam as a means to modulate the electron beam.

27. The fluid-ejection device of claim 23, wherein the electron beam generation assembly comprises a cathode ray pin tube.

28. The fluid-ejection device of claim 23, wherein the electron beam generation assembly comprises at least one field emitter.

29. A fluid-ejection device comprising:

a means for imparting mechanical energy on fluid contained in an associated chamber sufficient to cause fluid to be ejected from the chamber;

a first conductor configured to deliver a first signal to the means for imparting mechanical energy; and,

an electron beam source configured to deliver energy to the first conductor.

30. The fluid-ejection device of claim 29, wherein the means for imparting mechanical energy comprises a displaceable assembly and a fixed assembly.

31. The fluid-ejection device of claim 29, wherein the electron beam source is configured to deliver the energy independent of any fluid-ejection device integrated control circuitry.

32. The fluid-ejection device of claim 29, wherein the electron beam source comprises a cathode ray tube.

33. A fluid-ejection device comprising:

a plurality of chambers, individual chambers associated with a nozzle and a structure configured to move from a first position to a second position to cause fluid to be ejected from the nozzle;

a plurality of conductors, individual conductors being electrically coupled to individual structures; and,

an electron beam source configured to impart energy upon individual conductors to cause the structure to move from the first position to the second position.

34. The fluid-ejection device of claim 33, wherein the electron beam source is configured to emit an electron beam along a first axis and wherein the plurality of conductors extends along a second axis which is generally orthogonal to the first axis.

35. The fluid-ejection device of claim 33, wherein the electron beam source is configured to emit an electron beam along a first axis and wherein the plurality of conductors extends along a second axis which is generally parallel to the first axis.

36. The fluid-ejection device of claim 33, wherein the electron beam source is configured to emit an electron beam along a first axis and wherein the plurality of conductors extends along a second axis which is generally obtuse to the first axis.

37. The fluid-ejection device of claim 33, wherein the structure comprises a deformable membrane.